Set 17: Ionic Nomenclature Part I

Skill 17.01: Be able to name monatomic cations
Skill 17.02: Be able to name monatomic anions
Skill 17.03: Be able to name type I ionic compounds
Skill 17.04: Be able to name type II ionic compounds

Skill 17.01: Be able to name monatomic cations

Skill 17.01 Concepts

A cation is a positively charged ion

Examples:

Na^+, Mg^{2+}

Cations are identified simply by the element's name

Examples:

Cation	Name
Na^+	Sodium
Mg^{2+}	Magnesium
K^+	Potassium

Skill 17.01 Problem 1

Name the following cations:		
(a) Li^+	(b) Ba^{2+}	(c) Zn^{2+}

Skill 17.02: Be able to name monatomic anions

Skill 17.02 Concepts

An anion is a negatively charged ion

Examples:

Cl^-, O^{2-}

Monatomic anions are named by dropping the ending of the element's name, then add *-ide*

Examples:

Anion	Name
Cl^-	Chloride
O^{2-}	Oxide
S^{2-}	Sulfide

Skill 17.02 Problem 1

Name the following anions:			
(a) N^{3-}	(b) I^-	(c) C^{4-}	(d) H^-

Skill 17.03: Be able to name type I ionic compounds

Skill 17.03 Concepts

A type I ionic compound is a binary ionic compound made from a positive ion (cation) always written first in the formula and a negative (anion). In naming these compounds, the following rules apply:

1. The cation is always named first and the anion second
2. A monatomic cation takes its name of the element. For example, Na^+ is called sodium in the names of compounds containing this ion.
3. A monatomic anion is named by taking the root of the element name and adding *–ide*. Thus Cl^- ion is called chloride.

Skill 17.03 Problem 1

Name each of the following binary compounds:
a. NaCl
b. CsF
c. $AlCl_3$
d. LiH

Skill 17.04: Be able to name type II ionic compounds

Skil 17.04 Concepts

A type II ionic compound is one that contains a cation whose charge must be denoted with a roman numerial (I, II, III etc). Such cations include those that can form more than one type of positive ion. For example, Fe^{2+} and Fe^{3+} are iron(II) and iron(III) respectively. Elements that form only one cation do not need to be identified by a Roman numeral.

Common metals that DO NOT require a Roman numeral include

- Group 1, which form 1+ ions
- Group 2, which form 2+ ions
- Group 3, which form 3+ ions
- Aluminum, which forms 3+
- Zinc, which forms 2+
- Silver, which forms 1+

All other cations must be denoted with a roman numerial

Skill 17.04 Problem 1

Name each of the following binary compounds:
(a) $CoBr_2$
(b) $CaCl_2$
(c) Al_2O_3
(d) $CrCl_3$